

# ROCKS and MINERALS

PUBLISHED  
MONTHLY



Edited and Published by  
PETER ZODAC

January  
1944

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Entered as second-class matter September 13, 1926, at the Post Office at Peekskill, N. Y.,  
under the Act of March 3, 1879  
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Specialty written articles (as contributions) are desired.

Subscription price \$2.00 a year; Current numbers, 25c a copy. No responsibility is  
assumed for subscriptions paid to agents and it is best to remit direct to the Publisher.  
Issued on the 1st day of each month.

Authors alone are responsible for statements made  
and opinions expressed in their respective articles.

ROCKS and MINERALS

PEEKSKILL, N. Y., U. S. A.

The official Journal of the Rocks and Minerals Association

## *Chips from the Quarry*

### COAL MINE INSPECTORS SOUGHT

The U. S. Civil Service Commission has just announced a new examination for coal mine inspectors to fill positions in the field service of the Bureau of Mines. Persons are sought for mine inspection work connected with the improvement of safety conditions in coal mines.

Positions pay from \$3,163 to \$5,228 a year, including overtime, and require from 5 to 8 years of practical experience in coal mining. Experience connected with safety-of-operation of coal mines is required and applicants must have done some specialized work in a supervisory capacity. Applicants will be rated partly on a written test which will include questions based on the specific knowl-

edge required of coal mine inspectors and will test the applicants' ability to make written reports. The minimum age is 30 years, the maximum 55 years.

Applications must be filed with the U. S. Civil Service Commission, Washington 25, D. C., not later than January 20, 1944.

Announcements and application forms may be obtained at first and second-class post offices, from the Commission's regional offices, or direct from the Civil Service Commission in Washington, D. C. Persons using their highest skills in war work should not apply. Federal appointments are made in conformance with War Manpower Commission policies and employment stabilization plans.

### SOUTHERN CALIFORNIA LOCALITIES

By JACK SCHWARTZ

656 South Hendricks Ave., Los Angeles, Calif.

#### 15. Nuevo.

Nuevo is approximately 15 miles south of Riverside City, in Riverside County. Halfway between Riverside and Nuevo is the famed March Field.

For a town so small, Nuevo has the largest pegmatite dyke ever seen by the writer. Its quarry is now abandoned, which was once operated by some Silica Company.

Two rare minerals which are to be taken at Nuevo Quarry are the Xenotime and Monazite, both rare earths. These are found adhering to the huge black tourmalines that are running every which way through the pegmatite. Most of the tourmalines are soft and crumbly, therefore huge specimens are not obtainable. However, smaller black tourmalines can be found which are much harder and very nice specimens can be taken in or out of the matrix.

Much of the clear quartz mined here

shows an unique asterism. This material is highly prized by lapidary men, who cut star quartz gems. Some ingenious fellows glue a blue mirror on the bottom of the gem and lo and behold, he has a beautiful star sapphire!

Biotite is very common and large chunks can be easily had. The feldspar is for the most part Microcline and etched specimens are attractive and add to one's collection.

Hundreds of garnets can be collected, the writer collected a very large specimen covered with many of these perfect crystals, while loose crystals are to be picked up everywhere.

According to Pabst (1938) Orthoclase also occurs here.

Literature:

Pabst, A.

1938. *Minerals of California*. Calif. Div. Mines. Bul. 113.

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Vol. 19, No. 1

(( The Official Journal  
of the  
ROCKS and MINERALS  
ASSOCIATION ))

Whole No. 150

## MICHIGAN'S COPPER COUNTRY Keweenaw Peninsula—Lake Superior Region

By J. E. ANDRESS

Coming up on U. S. 41 or Michigan 26, one enters the peninsula at Houghton, crossing the only bridge over the Ship Canal, (which takes boats across the peninsula from one side to the other), into Hancock, then on through the mining districts of Osceola, Calumet, Kearsarge, Allouez, Ahmeek, Mohawk and Phoenix.

Here, the highways divide and 26 goes to the west coast through Eagle River and Eagle Harbor, then on as a well maintained gravel highway with many roadside tables and gravel beaches, to Copper Harbor. U. S. 41 bisects the peninsula from Hancock to Copper Harbor, 45 miles. This is a black top highway, passing for mile after mile beyond Mohawk through thick wooded and scenic country, more or less uninhabited. Here and there along the way are observed the mountains of tailings or "trap rock" left from former copper mines.

The two highways meet again at Copper Harbor where M. 26 ends but U. S. 41 continues on for two miles to Ft. Wilkins—an historic place of 1843 where copper was first discovered. The empty buildings are within a modernized stockade. The "Fort" is well maintained as a sort of park and picnic area outside of the stockade proper, but Ft. Wilkins was never used as a real fort, rather as headquarters for a military guard required to maintain order in those copper boom days.

Copper Harbor was then a thriving mining town and lake shipping center, having a local population, it is claimed, of about 1250 people. Today it is a

mere village with several cabin resorts. Motor launches make round trips to Isle Royale—50 miles off shore, but included as part of Keweenaw County.

One mile up grade some 600 ft. higher is located Keweenaw Park with splendid lodge, log cabin modern cottages with fireplaces; a sporty 9-hole golf course over the rolling plateau where timber has been removed for the fairways. The greens are remarkably well maintained, as is the entire enterprise with an exceptionally fine rustic dining room and famous cuisine, all operated by the Keweenaw County Highway Commission.

From Copper Harbor west, Brockway Mountain Drive tops a narrow high ridge, which parallels the lake shore and Route M. 26 below for many miles. The highest monadnock is 1360 ft. above sea level and 650 above Lake Superior level. Here one gets grand panaramic views covering a wide expanse of Lake Superior. Generally several iron ore and grain freight boats may be observed. Those going west toward Duluth travel 4 miles off shore at this point of the peninsula, while ore loaded freighters going east are 13 miles out, but are easily visible on clear days.

Away from the highways, in the upper part of the peninsula, the country is a rugged wilderness, covered thickly with trees—white pine, spruce, cedar, tamarack, white birch, hard maple, etc. Blueberries, huckleberries, thimble berries and sarvis cherries are abundant in season. Bears, wolves and deer roam the wilds.

The whole peninsula appears to be of volcanic lava formation and thickly covered with glacial sands, gravel and drift. Great lava conglomerate upheavals and outcroppings may be seen, particularly along the rock bound coast from Copper Harbor to Eagle Harbor.

Amygdaloid is very prominent in the mining districts (later referred to) and some exposures are seen along shores. At places along the shore banks, large dark gray, hard sandstone rocks (evidently glacial deposits) expose embedded agates—mostly variegated or banded, but occasionally chalcedony and moonstone. The agates being harder than the rock formation are eventually freed therefrom, hence agates may be picked up from among the pebbles on certain beaches, but not everywhere. Many broken off pieces of the rock mentioned have become water-worn flat pebbles and contain exposed agate inclusions.

We were generously rewarded for our efforts on the agate beaches and chiseled some choice ones from the big rocks.

Copper mining has been continuous since 1844 in Keweenaw (pronounced key-we-naw) County. Several large mines are in active operation and naturally through the years their shafts have had to be relocated.

The state of Michigan produces 10% of the *metallic copper* of the United States. Michigan, Wisconsin and Minnesota are highly mineralized, and produce about 85% of the iron ore of our country.

Some of the most active copper mines are now working at vertical depths of 4,000 ft. to 5,600 ft., which means that where inclines are also used, the total depth of the shaft may run to nearly 10,000 ft.

Pure metallic copper produced by nature's chemistry is embedded in amygdaloid and conglomerate ores. A limited amount of pure mass copper is found in fissure deposits.

All mines are now (September, 1943) working 100% on national defense, hence visitors are not allowed. Old mine dumps, largely of trap rock, may be examined without permission.

### Geologic Features

Strangely enough, this is one of the rare places in the world where copper is found in native metallic form in commercial quantities, embedded in the cavities of the rock (amygdaloid). The texture of the lode varies through cellular lode, coalescing lode, banded lode and fragmental lode. Much metallic copper is also taken from scoriaceous amygdaloid or amygdaloid conglomerate. All mining here is confined to metallic copper ores.

Incidentally along Lake Superior shores there is much disintegrated rock in the form of water-worn flat pebbles with embedded calcite, chalcedony, agate, and green copper carbonates, generally also badly weather-beaten.

In the basaltic lava flows are interbedded felsite conglomerates, quartz, porphyry, gabbro and associated acidic differentiates.

It is thought that each lava flow, as it cooled, gave off great quantities of gas, which collected into bubbles and rose to the top of the flow, where most of it escaped. But as the flow became cooler it also became more viscous, and finally the gas bubbles were entrapped near the top, forming cellular capping. Some of the entrapped bubbles flattened out horizontally and coalesced with other flattened vesicles. Later filling of the vesicles produced the amygdaloids, classified as cellular, coalescing or fragmental as above mentioned, according to their physical condition.

### Genesis of the Copper Deposits

There are two contrasting theories to account for the native copper deposits but the most favored theory by local geologists is that underlying intrusives known to exist in the Lake Superior Keweenaw, on crystallizing, gave off solutions rich in copper, arsenic and sulphur; expelled under enormous pressures, they followed permeable amygdaloid and conglomerate channels upward, cooling and entering regions of lower pressure as they ascended; reacting with the highly oxidizing wall rock, they had their arsenic and sulphur oxidized by the ferric iron of the lodest and their

copper desposited as native metal.

### Mining

The Ore bodies are tabular (or platy) in form, average from 5 to 30 ft. or more in thickness, and dip at angles of  $30^{\circ}$  to  $72^{\circ}$ .

Where the operating company owns the outcrop, inclined shafts are sunk in the lode or close by the foot wall at intervals of about 2500 ft. along the strike. Some of these shafts are over 9,000 ft. in length and reach a vertical depth of over 6,000 ft.

The several vertical mine shafts in this area have long been famous because of their great depths. Evidently the richness of the metallic copper deep ore and war demand (1943) justify mining at depths approaching two miles.

Vertical or steeply inclined shafts are also sunk in the hanging wall where a company does not own the outcrop of the lode. Such a shaft may be curved to swing into the lode when it is reached, and with one continuous "skip" carriage on guideways in the shaft for the ore cars. Crosscuts may be driven to connect the shaft with the drifts on the lode.

Horizontal drifts are driven at intervals 100 to 200 ft. measured along the lodes for convenience in bringing ore to the shaft.

Stoping is used for recovery of ore above each drift level and this ore is sent down through gravity chutes to the ore cars in the drift. Incidentally, there are no tracks or cars in the stopes.

Underground temperatures are not considered extreme although at great depths may be normally over  $90^{\circ}$ , yet miners told me that the pumped air circulated by fan blowers, makes working atmosphere comfortable. The active mines are kept comparatively dry, although necessary in some cases to pump over 1500 gallons per minute.

### Milling

Milling and metallurgical plants for all mines are located along the inland tributaries to Lake Superior, mostly beside Lake Linden and Portage Lake, outletting into Keweenaw Bay.

The ore as it comes to the mills has

received its primary crushing at the mine surface plants in jaw crushers reducing to run-of-mine size passing a 6 to 10 inch screen. It then is dumped into ore cars or trucks bringing it to the mills. All secondary crushing is done by means of steam stamps.

In this district the milling practice consists of crushing to  $3/16"$  or  $5/8"$  size by the steam stamps with intermediate reduction by rolls, so that the product for gravity concentration is finer than  $3/16"$ . Separation of the coarser copper is effected by means either of jigs or of shaking tables.

In all of the amygdaloid milling plants of the district, the flotation process is used for recovery of all copper finer than 35 to 48 mesh. The method is very similar to that used in Colorado and elsewhere to gather the fine particles of gold. Oil is mixed with water in large vats and agitated, thus the fine copper sticks to the oil and oil, being lighter than water, floats, hence forming a "suds" at the top where it is lifted off by mechanical paddles, whereupon the copper is recovered with loss of only about  $1\frac{1}{4}$  lbs. to the ton.

The "tailings" as referred to in the second paragraph of this article, and which were discarded as worthless, 40 to 75 years ago, are being reprocessed for recovery of the copper. After customary crushing and grinding to  $3/16"$  these coarse grains are given a fine grinding by means of Hardinge pebble mills, followed by classification and flotation on the slimes (smaller than 200 mesh) and by leaching of the sands larger than 200 mesh. Leaching is done by means of cupric ammonium carbonate solution, the copper being dissolved as cuprous ammonium carbonate, which on distillation yields copper oxide for the smelter, with coincident recovery of the ammonia and carbon dioxide as ammonium carbonate for use in subsequent cycles. These modern metallurgical processes have resulted in about \$30,000,000 profit being made from formerly worthless discarded sands.

### Smelting

Inasmuch as the copper occurs in the

ores as native metal, the smelting process starts with melting the concentrates in a reverberatory furnace, the gangue being separated as molten slag and the copper recovered in the molten condition. In some cases it may be necessary for the copper to go to a second refining furnace, but in any case the metal is cast by mechanical methods into desired shapes such as ingots, slabs, cakes and wire bars. The high purity of the copper from this district is a point in its favor.

#### In Conclusion

One should not leave this section

without spending some hours in the Michigan College of Mines Museum at Houghton. Here is a most complete mineralogical display, including marvelous specimens and large chunks of native copper and of all copper ores. On the College of Mines lawn there is mounted on a pedestal a large specimen of mass copper weighing over 4,000 lbs. After being charmed with these interesting, illuminating, indexed and classified displays (visited on two occasions) we were hesitant to leave and we still yearn to pay a return visit.

## MONEY STONE IN PENNSYLVANIA

By PETER ZODAC

Editor Rocks and Minerals

It seems rather odd that rutile crystals should be given the name "money stone" and I have often wondered why. It was not until a visit was made to an occurrence for the mineral in Lancaster County, Penn., did I learn the reason for the name given it.

Some years ago there was such a demand for rutile that prices for the crystals rose to as high as 50c per ounce. Farmers in Lancaster County derived so much revenue from its sale that every crystal found was as good as money—hence the name, "money stone". But when the price for rutile dropped to 7c a pound, there was no profit in its sale and interest in the mineral dropped off suddenly.

On the farm of Harvey J. LeFever, about 1½ miles northwest of Quarryville, Lancaster County, a large number of rutile crystals have been found, one of them being 14 ounces in weight that was found by his son and sold for \$2.50. The crystals occur loose in the soil and were much sought for. At first the farmers had a most tedious task in trying to pick out the crystals from the worthless pebbles which were only too plentiful. But in time they discovered an easy and a very ingenious method for

detecting rutile in the soil without even having to pick up a single pebble.

Rutile seemed to be especially prolific in the soil of open fields. These fields would be plowed in preparation for planting which at the same time loosened up the soil and brought hidden crystals to light. But not until after a heavy shower would an active search be made for the rutile as then the rain would wash the crystals out of the soil or else clean those covered with dirt. Then when the sun came out and by walking over the fields always towards it, the rutile crystals would glitter brightly and betray their presence. In other words, the farmers always walked towards the sun and detected the rutile by its brilliant luster.

A few years ago the locality on Mr. LeFever's farm was visited. To reach it, we took Route 222 out of Quarryville for Lancaster. About ½ mile northwest of Quarryville, the road goes under the Pennsylvania Railroad, via a short tunnel. About a mile from this tunnel, we turned left on a dirt road which led up to a yellow house (a few hundred feet away). This is the farmhouse in which lives Howard Wirtz as Mr. LeFever resides at 112 Broad St.,

Quarryville. About 200 feet past the house is a large field and it is in this field that the rutile occurs.

At the time of our visit, both Messrs. LeFever and Wirtz were present and they very kindly gave us permission to hunt for crystals. We spent about an hour going over the field but all we found were three fair crystals. As the field had not been plowed for some time and the sun was not out in full force, we had to get down on our knees and crawl around the best way we could. The crystals found were dark brown to almost black in color and up to an inch in length. They were either loose or imbedded in quartz pebbles or small boulders. The loose crystals were lustrous, deep black in color with spots that were deep reddish-brown, and striated. In the quartz, the rutile occurred as small masses of imperfect black crystals or small, dark brown, translucent, needle-like crystals.

Other minerals found were:

*Quartz (Jasper)*: a tiny pebble of a brown color.

*Quartz (milky, also smoky)*: As pebbles and small boulders, they are very common but they are so stained by clay and iron as to be worthless for specimens

were it not for the fact that some of them contain rutile.

*Limonite*: Very common as yellowish to brownish stains on quartz. It is this staining that has ruined many specimens. A small specimen of massive brown limonite also found.

*Hematite*: Noted as red stains on quartz. One small milky quartz pebble was found containing two tiny cavities lined with massive black hematite with a botryoidal surface.

From the study of the rutile found, it would indicate that the crystals represent a decomposed rock, possibly a limestone, which lies beneath the surface as the crystals could not have travelled far. No rock was to be seen outcropping in the area but in Quarryville is a limestone quarry in which are present rutile crystals but of a poorer grade. However, as some of the rutile were found imbedded in quartz, it is apparent that a quartz vein must also be present.

The writer is indebted to Messrs. LeFever and Wirtz for the opportunity to visit the locality and to collect specimens and especially is he indebted to Mr. LeFever for the information about money stone.

## CALIFORNIA MINERAL PRODUCTION FOR 1941

State Mineralogist Walter W. Bradley of the Division of Mines, Department of Natural Resources, announces that Bulletin No. 122 is just off the press and ready for distribution. The title of Bulletin No. 122 is California Mineral Production and Directory of Mineral Producers for 1941. This bulletin is one of the series of annual statistical reports that have been issued for many years. It contains detailed data covering the amount and value of metallic and nonmetallic minerals, subdivided as to fuels, metals, structural materials, industrial materials and salines, both by substance and by counties. A directory of all producers (except of natural gas and petroleum) is included and adds much to its value.

At intervals of several years cumulative tables are brought up to date showing the to-

tal production and value of all minerals produced in each county from 1880 to date. Bulletin 122 contains the cumulative tables up to and including 1941.

The properties and uses of the more than sixty mineral substances produced are treated briefly, the whole comprising a condensed compendium of information on the commercial minerals of the state.

Bulletin No. 22 contains 377 pages and 8 illustrations, bound in paper covers. It may be purchased from the State Division of Mines, Ferry Building, San Francisco, State Office Building, Sacramento, and State Building, 217 W. First Street, Los Angeles, for \$1.00 plus 3c sales tax for California residents. It may be consulted at the Redding branch office in the Chamber of Commerce, Redding.

Geo. Myers, Jr., of 77 E. Hamilton Ave., Englewood, N. J., is one of our young members, being only 14 years old. He has a

number of duplicates that he had collected on many trips to localities which he would like to exchange with collectors of his age.

## GEMS IN CORNWALL AND DEVON, ENGLAND

By T. ORCHARD LISLE

Some of our boys are stationed in the West Country of England, and probably many more will soon be there training for the great invasion of Continental Europe. Perhaps among the soldiers there are some rockhounds, who, when on their brief furloughs, can take advantage of the mineral deposits around them in the many mines and quarries which exist in Cornwall and in the neighboring county of Devonshire, where the famous clotted cream comes from. Some of the old tin mines were worked by the Phoenicians in the earliest days of Britain, and a certain amount of gold and silver were also found by these old miners. The gold was usually concealed by the workers in goose quills and placed in their hair.

In 1939 I made a visit to Great Britain on business, planning to stay for some years. I intended to re-visit the West and search for gem crystals; but the war broke out with its nightly complete blackout and gasoline restrictions, which made a postponement very necessary. In April, 1940, I was ordered back to the United States by my company, so another opportunity may never occur for me. But, some interesting information on locations was given to me at the time by E. H. Davidson, of the Geological Department, School of Mines, Camborne, Cornwall. This information I am only too glad to pass along to readers of **ROCKS AND MINERALS** in case some of them who are in England may be able to visit the localities to be mentioned. There is a good display of minerals at the School of Mines.

To those mineralists who prefer rocks for cutting and polishing, I will mention that the serpentine of Lizard comes in a lovely black and dark green, and red and black. It takes a very fine polish, and is far more beautiful and harder than the serpentines of California, for instance.

Blue topaz crystals are found in very small sizes in the rocks at Lamorna Cove; at Constantine and Mabe, but they are very pale in color. They are also to

be found at St. Michael's Mount, a small peninsula in the sea off Penzance, although it may be extremely difficult to obtain permission to collect there, unless a rock-minded soldier was actually stationed on the spot.

Yellow topaz in crystals  $\frac{1}{4}$  inch by  $\frac{1}{16}$  inch are to be found by the diligent searcher at St. Mewan Beacon, near St. Austell, while white topaz occurs in aplite at Tremearne Cliff, near Porthleven, if you can distinguish them from the quartz.

Green topaz and green tourmaline can be found in the old quarry at Meldon, near Okehampton, Devon, and the entrance to the quarry is along a road running under the high viaduct of the Southern Railway. To obtain any good specimens it would be essential to do some blasting. The road and the viaduct are well guarded by British soldiers, so watch your step, and first obtain the necessary military permits. A topaz in the hand is worth two leaden bullets in the leg!

Tourmaline is of common occurrence in black and brown crystals in the West country of England, and blue tourmaline crystals have been found in a quarry near the Tresavean mine at Lanner, Cornwall. Occasionally vugs in pegmatite are found showing crystals of pale blue apatite, gilbertite mica, tourmaline, etc.

Since I left England in 1940 many of the old Cornish tin and copper mines have been reopened, and no doubt the new dumps will reveal a variety of minerals, and possibly the miners will have specimens to trade if approached with the tact and respect necessary to induce them to 'open-up'. Until recently, at least, cassiterite crystals of any size had become rare; but could be found at Kitt Hill, Callington; Cligga Head. Perranporth, and at the old Wheal Fortune mine, Breage, all in Cornwall.

Wolfram is to be found at Kitt Hill, at Cligga Head, and at the Castle-and-Dinas mine at Columb Major; also in the dumps of the Carn Brea mine at

Redruth. At one time copper minerals were fairly plentiful, but in the years before the war became rare, although small samples of native copper, chalcocite and malachite could be picked up on the dumps of the old Gwennap United Mines at St. Day.

Axinite may be discovered at the Tremore quarry, near Lanivet cliff, not far from the Botallack mine; andalusite can be found at St. Agnes, and chialtolite at Ivybridge, the latter being on the edges of Dartmoor in Devon. At St. Mary's Tavy, near Tavistock, Dartmoor, Devonshire, there is an old mine with huge dumps well worth searching. There is considerable pyrite, which the natives used to call mundic, and at one time this was worked for arsenic. I have secured a few fine crystals on the occasion of a visit made during a previous stay in England. Many years ago several miles of the Great Western railroad (single track near by) were paved with stone from these mine dumps, and in the sun looked as if it was paved with gold—a beautiful sight. Roads across the moor take

one past several old mines, including a tin mine. Near Okehampton, on the road to Exeter, there is an old copper mine located at a sharp bend in the highway. The dumps are quite large, but almost covered over with grass. I found several pieces of brown garnet, one of which I still have, on top of the pile. Considerable digging doubtless would result in many good mineral specimens, and possibly some native copper.

Very fine maps are sold in England known as ordnance survey, one-inch to the mile maps. They are published by the Ordnance Survey Office, Southampton, and before the war could be purchased at any stationer's store for 60c each. Every road, footpath, trail, landmark, and even quarry and mine is clearly marked on the same. Such fine and complete maps do not exist in the United States. If they cannot be freely bought today, no doubt most motorists will have prewar copies. For the foregoing mineral locations, the rockhound will need sheet maps Nos. 146, 143, 144 and 137.

## FIELD MUSEUM CHANGES NAME TO CHICAGO NATURAL HISTORY MUSEUM

Field Museum of Natural History, of Chicago, Ill., passed out of existence as a name on Dec. 7, 1943, and the new name, Chicago Natural History Museum, went into effect officially with the granting of an amended state charter by the secretary of state at Springfield, it is announced by Orr Goodson, acting director of the museum.

The decision to change the name was first announced on September 15 by Stanley Field, president of the museum for the past thirty-five years, on the occasion of the celebration of the fiftieth anniversary of the institution's founding by the late Marshall Field (I). At that time President Field said, in an address before more than 1,000 of the city's civic leaders gathered in the James Simpson Theatre of the museum for a ceremony marking the golden anniversary:

"The museum has had three names: Columbian Museum of Chicago—Field Columbian Museum—and Field Museum of Natural History. Mr. Marshall Field (III) has discussed with me several times the matter of the name of the museum. He has felt that since the museum was created and maintained for the public and has become identified in the minds of the public as a Chicago institution, and since it is now playing a growing and important part in the educational activities of the city—it would be appropriate, and also in the best interests of the museum, if the name were changed to: Chicago Natural History Museum, thereby identifying its ownership more closely with the people of Chicago to whom, of course, it has always belonged."

## PARICUTIN, THE WONDER OF THE HEMISPHERE!

By PAUL E. KILLINGER

120 W. Winspear Ave., Buffalo, N. Y.

Part 4, As it appeared on Aug. 24th, 1943

August 23rd and my last trip of the year was made to Paricutin, now a large volcanic mountain of varyingly estimated heights ranging between 1800 feet and 2500 feet and supposed to contain three vents in its crater. I would be prone to believe the more conservative figure as this type of newly formed peak is very difficult to estimate with regard to height.

My companions (on this trip two boys from Boston) and I entrained at Mexico City at 8:25 P.M. scheduled to arrive at Uruapan about 2:00 the next day. Although we were on schedule to begin with, our engine was derailed at a distance of about three miles from that town necessitating a walk to it. Upon arrival we proceeded to the Progreso Hotel, had a good hot meal and slept until 2:00 A.M. We then started out for San Juan, arriving there some two hours later.

On this trip we had the pleasure of meeting a Tarascan who had attended college here, therefore speaking excellent English, and we instantly hired him to act as our guide.

As this was the first trip to Paricutin for my friends, we first rode to the shelter on the observation hill.

Paricutin's action was undiminished, and the semi-molten lava was still being thrown thousands of feet into the air.

The crater that had opened on June 10th still gave evidence of itself in that glowing fragments would at times be seen breaking away from that almost indiscernable place where it had been located.

The lightening phenomenon was again noticeable and I observed more flashes than I had on any other previous visit.

Shortly after dawn we returned to San Juan for food for ourselves and for our horses. Then, in mid-morning, we left to ride around the cone, a long anticipated trip.

We first passed through the town of Paricutin and we were surprised at the number of men engaged in digging out their old homes, but this seemingly useless work was explained when we noted that they were merely removing the precious wooden planks. Farther on we noticed that a pit had been dug in the middle of a space which once had been the floor of a home. This, our guide explained, was caused by the original owner returning to get his money. It seems that it is a regional custom for the natives to bury their treasures a few feet under the floors of their homes.

### The Rain of Mud

After leaving the village it was necessary for us to pass through a series of gullies on the northwest side of the cone and only a few feet from its slopes. To make matters worse the smoke and vapors from the crater were drifting over this section, causing a rain of mud, by condensation of the vapors in this steadily ascending cloud and this rain carrying the dust particles with it. This closeness to the constant clatter of the boulders falling and rolling down the sides of the cone, coupled with the mud shower, terrified our horses and we had no end of trouble urging them the quarter-mile to a sunlit hill on the western side.

### Aerial Bombardment

Here we encountered a region of desolation such as one would expect to encounter only at a battle front. The region was one of rolling forested hills which at this time seemed like sand dunes covered by stark broken trees. As there had been no lava covering these regions to the northwest, west, south and southeast, the volcanic bombs could easily leave their imprint upon the sands. The bomb throwing action seemed to have been concentrated in these directions for sometime, as the landscape showed. Numerous trees were smashed and broken by them; one pine almost

two feet in diameter being broken at the stump, thereby indicating the force with which these "bombs" fall.

Where they fall in the volcanic sand, craters of various sizes result. Probably the deepest were one and a half or two feet deep and four to five feet across, contained rocks of perhaps a cubic foot mass and weighed between twenty and fifty pounds. One piece of a close grained, black, basaltic type, hurtled down within ten feet of us, burst on contact and made a crater in the sand a foot deep and two and a half feet wide. I retained a fragment of this bomb and it shows a pronounced conchoidal fracture and contains phenocrysts of square, rectangular or triangular shape. These phenocrysts seem to be augite intimately mixed with the various gradings of olivine, probably being of a rarer type closer to fayalite as this lava did not show a large amount of magnesium, but contained more iron and calcium. Almost microscopic crystals of brown hornblende also seem to be present. Most of the lavas seem to be amygdaloidal basalts.

After our rest here we rode on, soon coming to the extensive third lava flow. In order to pass this we were forced to ride among the hills. Erosion made the going hard by reason that the ash covering the sides of the hills was very easily washed away forming many steep sided arroyos. We skirted completely the third flow before arriving at the shelter on the lookout hill. Many large vents were noted along the slopes of the flow, sometimes covering an area of ten square feet, to the sides and above the opening of it with the yellow, orange and white sublimates.

Upon returning we devoured several dozen tortillas together with several dishes of frijoles in their usual environment of hot pepper sauce.

I then went in search of information and specimens. Accompanying me was a little Tarascan boy whose horse I had been using. He led me down to the edge of the lava, and skirting it through a gully, he brought me to an area of extreme activity. There were so many

fumaroles that small, bluish-white clouds hung over the spot continually. It was a collector's paradise, with sublimates ranging through yellow, orange, red, green and grey. I tested three hundred different vents for free sulphur and found only a trace in ONE.

One small slope of which I still retain a clear picture, was a steaming mass, the vapors rising among the small lava chunks and depositing their variegated sublimates among them so that this little spot truly resembled a "rainbow in rock." We did not investigate this spot too thoroughly as everything was too hot to handle; but I now realize that much of this coloring must have been caused by the various degrees of oxidation undergone by the iron composing the lava.

Several finely crystallized specimens of ammonium chloride were collected and, although contaminated by small amounts of arsenic turning them grey at the edges, they now repose on an honored throne of cotton in my collection. Small groups of orpiment and realgar crystals were also procured, but the 3500 mile trip here proved too much for their fragile attachment to their parent rocks and all but a few were too badly damaged to be added to my collection.

After a pleasant hour among the fumes we hauled the worthwhile specimens back to the familiar hill.

I spent the next hour having some of my Indian friends pronounce the Tarascan words which translated the Spanish ones I asked them, and these I transliterated into writing. These friendly people have no written language, but their Indian dialect takes an important place among the sixty-three others spoken in Mexico. Of their language, culture and history very little is known by the outside world.

Then after snapping a few photos we prepared to return to San Juan. First we witnessed a very disappointing sunset, disappointing because it was all but obscured by grey rain clouds.

We mounted our horses, and for the especially for a saddle horse. Harry

(Continued on page 13)

## LIFE IN VIRGIN VALLEY AND HISTORY OF THE DISCOVERY OF OPALS THERE

By MRS. H. E. RINEHART

Cedarville, Calif.

When my husband, Harry Rinehart, was offered the foremanship of Miller & Lux's holdings in the Virgin Valley, of northwestern Nevada, I, as the mother of three small children, was not favorably impressed about going so far into the wilderness. Virgin Valley was 80 miles from Cedarville, California, and 80 miles from Winnemucca, Nevada, the nearest towns and in which resided the nearest Doctors and 30 miles from Denio, Oregon, the nearest Post Office. There was no school in the valley and the nearest neighbor would be 8 miles away. However, Harry liked the range and cattle and liked to rope and ride. He had previously been the foreman on the XL Ranch near Alturas, Calif. However, I finally consented to go; so in the spring of 1908 we loaded our belongings into a two horse wagon and hired a man to drive it. Harry hitched a team of horses to a carriage for me to drive, with the children for company; he rode his favorite saddle horse and drove four or five loose saddle horses. Within a mile from Cedarville we were in the never ending sage brush following a dim road or trail made mainly by the tread of horses' hoofs and the roll of wagon wheels. The road led over hills, slopes, flats and canyons. The first night we camped at Massacre Lake, in N. W. Nevada, where some early emigrants were killed by the Indians. The next day we reached Virgin Valley, where Harry found he would have charge of a few men, about 2,000 cattle, some horses, and a wonderful range.

After the branding was done that spring and the cattle distributed to different parts of the range, we had a nice garden put in for our use. I tried to raise some chickens, but the coyotes were so bad, that we lost many of them and it was most difficult to keep the men supplied with fresh eggs. I often saw as many as seven or eight coyotes at a

time within a few hundred yards of the house; Harry shot a good many of them that spring and poisoned many more.

A large creek of warm water gushed from the cliffs in the canyon above the corrals and a portion diverted to the house made it ideal for bathing both during the summer and winter. One day one of the buckaroos brought in a kid antelope as a pet for the children and soon after, one of the other boys brought in a little fawn deer, a mule tail. Both were raised on the bottle and made wonderful pets for the children and were always with them following through the meadows and over the hills. Nearly every day in the summer the children would put on bathing suits and go to the pond at the mouth of the canyon to swim. Both the deer and the antelope followed them. The deer seemed to enjoy the water as well as the children; but the little antelope didn't like to get his feet wet and preferred waiting at the bank.

We were anxious to get the children in school. As it took five children to form a school district, we thought of the idea of including the McGee's, 8 miles below us, who had two children. The district was formed and a room fixed up in a loft over a stone cellar for a school room. A teacher was hired, living with us. Our three children never missed a day, but the McGee's never came a single day.

The most wonderful land mark in the valley to me was the Stone Tree, as people in the vicinity called it. It was petrified and stood about 2 miles below the house on a natural pedestal above the floor of the valley and, as I recall, it was about 25 feet high and 5 or 6 feet through. It was always inspiring to me and I will always think of it as truly, "A Rock of Ages".

We never received much mail or wrote many letters, as the trip to Denio and back was a long one to make in a day,

would make a list of things we needed, twice a year, and they would be sent in from Winnemucca, 80 miles away.

The cattle would always be driven to Winnemucca for shipment, taking four or five days for the trip but the boys would return in two days.

When the hay was ready to cut in the summer of 1909, a bunch of men was sent in from Winnemucca; among them was Frank McGuire, who would always spend his Sundays and spare time riding or walking through the hills. One day, that summer (in the month of August, I believe), he came back and after showing a few stones with some flashing hues to the men, he handed them to me and asked me to keep them for him until he was to return to Winnemucca. After the haying was done, he came to me and asked for the stones, as the crew was going back to Winnemucca. Harry asked him to return because he wanted an extra man to help build a fence. Frank promised to return.

Upon his return, Frank stated that a jeweler in Winnemucca had pronounced the stones he had found as opals. He then made several trips to the location of his discovery, but with little success. After the fencing was done, he left the valley and never returned.

One day Harry happened to tell Bill Ebling about the opals and the location of discovery (Frank had told him where it was) and never thought more of it. Ebling was a rancher who lived in the valley about 8 miles away from us. He at once went out and staked the claim. I believe this was in November of that year—1909. He also went to Winnemucca and had it recorded, one-fourth in Harry's name, calling the claim. "The Opal Queen", which was located roughly about 2 or 3 miles northeast from the petrified stump (the stone tree).

Soon after this, Harry located the Pebble claim south of the Stone Tree. This claim produced some very good opals. One day while digging for opals on his claim, he struck a bone about 2 feet below the surface. Upon examining it, he recognized it as an Indian war club; digging farther he found a roll of

tule matting, also some matting made from the bark of sagebrush. He brought some of the matting home and tried to preserve it; but it soon air-slacked to dust. The war club was perfectly preserved. It was 2 feet long, slightly curved and was about 2 inches in diameter at the butt with a hole about  $\frac{1}{4}$  inch in diameter bored through for the purpose of suspension. He showed the bone to a good many people; but no one could classify it and thinking it was of pre-historic origin, he sent it to the University of California for classification. The university was much interested in it and made quite a report—classifying it as an Elk's antler but wouldn't venture to state its age except to say that it might have been there 100 years or 500 years. The amount of silica in the ground there would preserve it indefinitely. I still have this war club in my collection and am still holding the opal claim.

The Rainbow Ridge mine is not in Virgin Valley proper, but across the ridge about 4 miles south from Miller & Lux (Virgin) Ranch on Virgin Creek. I don't recall any work having been done there when we left in 1914. Harry located a number of other claims in the valley but he did not keep up the assessments. He died on Dec. 22, 1940, in Cedarville, in his 63rd year.

*Editor's Note:* The date of the discovery of opal in Virgin Valley has been variously stated by different writers from 1905 to 1910, that the discovery was made by a cowboy, and at or near what is now known as the Rainbow Ridge Mine. In this article we have the true facts about the discovery.

## PARICUTIN

(Continued from page 11)

last time I rode over the hilly, ash-covered trail to San Juan.

With a last goodbye to our guide and all the friendly Indians who had aided us here and there, we took leave of this memorable town of San Juan Parangaricutiro. With a last far off glimpse of Paricutin, the curtain dropped on the last act of this magnificent production directed by Nature, that I was to witness for this year.

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## THE AMATEUR LAPIDARY

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### "CANSAW"

By WM. C. CHANDLER

944 University, San Jose, Calif.

All amateurs have had the experience of sawing a beautiful slab, which took considerable time, with expectations of a perfect specimen, to find when through that it was flawed by pits or a fracture. Though a part of it was perfect there were a few pits that must be ground out (which meant a lot of work) or else a fracture cut through it.

As grinding away pits in a large specimen takes time, we often lay aside that specimen, perhaps never to work on it again.

"If it were not for that one deep pit!" we often exclaim, "that piece would be perfect. Now it is almost beyond repair." Not quite, though, for you 'Cansaw' a slab from that perfect area by use of a "CANSAW".

Now it is simple, if you know how. First you need a tin can with one end opened up by use of the circular can opener (one that leaves a smooth rim). Make a hole in the center of closed end of the can. This hole should be a little larger than the bolt you have handy that will be inserted through it, thread end through first after you have first run a nut down on it and placed a washer next to that nut. After the bolt is through the can, place another washer and another nut on it (inside the can) and tighten. Then cut off the head of the bolt and place the bolt in drill press. The "Cansaw" is now ready and the next step is to place slab to be sawed on a handy board (large enough to be clamped to drill press table) and fasten slab with three penny nails (if it is a heavy slab longer nails are needed), by driving the nails against edge in different places around the edge. The head of nail is to come down and rest almost against slab but do not try to get too close for fear of breaking specimen. Under four different sides you can

wedge up slab so that it will be snug against nails by using thick shavings or wedges.

Next locate cansaw edge against position on specimen you wish to saw from slab, then clamp solid and fasten table so that it can not move. Then make a levee of soft putty or mud a half or three-quarters inch high around and on top of work with space to spare to shove grit towards center of operations. Turn drill press by hand to find how true your saw will run. If it is off center, loosen top nut a little and tap upper edge of can on the out swing until it is centered, then tighten nut securely.

If your drill press has a lever feed you can fasten a suitable weight to the lever and after starting your work there is nothing more to do except to watch that your mixture of grit and water is circulating well. After work has progressed to where there is a fair groove in the slab, you then take cansaw from the chuck and with your snips trim off rim and cut out the seam in can up for an inch or less, according to how thick the slab is, just so that top of notch cut will not be buried by mixture while the saw is in motion. I have tried different speeds and find that about 500 revolutions work well but with small cansaws a higher speed will not throw mud. A little experiment will soon show what speed you like best. The main idea is to keep machine operating without chattering and that is usually caused by too much pressure which will throw mud and ruin edge of saw. But should that happen, take out and trim again and in less than a minute you can again resume sawing. In replacing saw, after once removing it, lower saw into cut before starting machine. Once you have a groove made you have no worry about getting it back into cut. You need no clay in

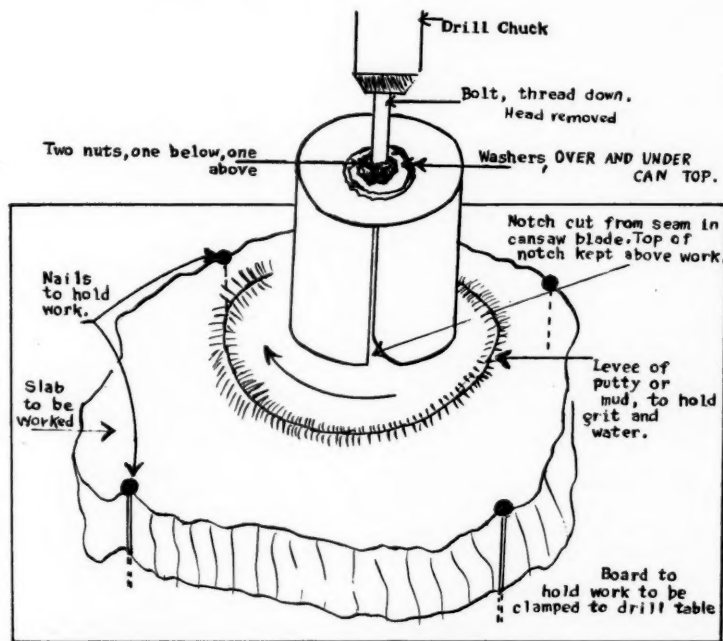
your mix. Just grit and water. The notch in your saw will feed inside and keep it working freely. If your work is an inch thick or more, it is well to cut more notches in saw but not until you have cut in a good track for saw to follow. It is best to round off back end of 'V' notch so that sharp corner will not catch. If you do not trim saw evenly, do not worry as it will soon become even but care must be taken not to put too much pressure on saw for the edge will become very thin and then will fold over and delay the sawing and may make a groove in side of cut. Take a look occasionally and if it has happened, take out and trim.

I am cutting with a post drill and I equipped it with an automatic feed that works fine. In place of ratchet that came with it, I put some stove bolts up through wheel and formed a spool. Wound some stout cord around the spool and led the end through eye bolts on

side wall of shop then with a rock tied it so that it works as a feed. The pressure is just enough to keep saw lowering as it cuts its way through work.

When drilling the hole through can for bolt be sure that no waste metal hangs to edge of hole. This would make saw wobble as the washer will draw one side down when it comes in contact with the metal shaving from hole.

In cutting thick work it will be well, after work has been going for some time, to remove clamps from board and wash out cut with running water, saving the grit for it can be used over and over again. Then replace clamps after you have lowered saw into position and turned drill over a few times to see that it runs easily in cut. Replace grit and fresh water and you may be sure you are not starting a new cut. It is not like the circular disk which is so hard to replace when trimmed or a new saw is put in use.



SKETCH OF CANSAW

I keep one cansaw for starting work and one or more handy to continue with rim cut away and notch cut where seam in can is, as above described.

I have taken boulders from the creek and did not slab them. Picked out a surface on one that suited me and wedging the boulder solid on a board, proceeded to cut out the desired specimen by carefully lowering cansaw on to the uneven surface and feeding it by hand until it had a goodly groove to follow. Then it was turned over to the automatic feed and I proceeded as with a flat slab except that I puttied around the bottom edge next to board so that my mix would not be lost when saw cut through the thinnest part of work. Some specimens are greatly improved by having top and sides worked over in this method for it does not take long to finish after it has been sawed on sides as well as top and no pits or flaws to grind out.

I found a creek boulder of breccia jasper which was flat on one side. By fastening flat side down on board, I cut hole with No. 1 tin cansaw. Then flattened surface around hole and polished. Then placed ash tray to fit. With felt on bottom and enough of the surface polished to bring out beauty of this form of jasper, I had a neat specimen.

To find center of can for bolt, I made a center punch mark in end of vice jaw then with jaws opened far enough to lay can in, I took dividers and scored end of can after turning can over several times in cradle. This left a sketch of center from the marks of the dividers. By keeping end of can flush with jaws of vice as I turned it and did the marking, it was the true center.

With slabs of marble from discarded furniture I recovered from wrecking yard, I made some nice candle sticks by cutting one slab with No. 3 tomato can and another slab from the use of a No. 2 fruit can, and cementing them together. Hole for candle was made with tubing from an old bicycle pump.

A few years ago I had about a hundred sheets of sanding paper which had been in storage for some time. When I moved north I started to use it but found

it had been ruined from dampness. I was stuck with it but the misfortune caused me to experiment with what I had in the shape of plenty of grit and very little money to do more buying. Making paste of the coarser grits was wasteful so I decided to try making sanding wheels.

I took scrap ply wood, about  $\frac{3}{4}$  inch thick, and sawed as near round as I could then bolted the disk on 5 inch 'V' pulley (that fit my shafting) with flat head stove bolts, three of them, then fastened pulley on end of shaft and turned it fairly true. Taking the complete disk from shaft, placed it face up on spread newspaper. With every thing handy, I then coated face of disk with Water Glass (sodium silicate) by pouring on plenty and spreading quickly and flipping surplus off with straight edge. I moved work to another spread newspaper and doused grit in center, then taking wheel in hands, I quickly shook it around until all surface was covered. Laid it aside to dry for a few hours then dressed it down with a flat slab of quartz, or any flat rock, then applied another coat in same way the first coat was applied. After three coats were on and dry, I put on shaft and ground flat work for a time, then small pieces.

The idea is to spread the water glass quickly and apply grit as soon as it is possible for it will start to harden immediately and any delay in either operation will make it bumpy. But after several coats have been given the wheel, you can dress it down with wheel dresser. Never spread grit by hand. That is why a newspaper is spread out so that you can sprinkle it on in a hurry and cover it evenly and not waste grit. Before using, rub with flat slab while held over newspaper to catch loose grit and while in use you can save grit by use of guards. Once it is made, your sanding is far less costly than sanding paper and never gets torn with edge of sharp rock. When it becomes grooved badly, just give it another coat. Grinding out center with a rough piece of quartz of some variety will overcome the high center that will pile up there. Do not add

water on the wheel as it is used only for dry sanding. In the face of a large disk you can have several grooves for cabochons.

I noticed a workman using adhesive tape on small blocks of wood while he was sanding them. I tried it on thin, small specimens that were difficult to hold on face of disk and it worked fine.

This is the reason. When the rock was getting too warm the tape started to slip and that was a sign of danger towards the checking of the specimen so I would lay it aside and pick up another. This method is good in place of cementing on dop sticks for the roughing out operations.

## DIAMOND CRYSTALS OF THE KASAI DIAMOND FIELDS, BELGIAN CONGO

By HORATIO C. RAY

San Juan, Puerto Rico

Some few years ago when I was in charge of the diamond-picking 'Centrale' of the Cie. Forestiere et Miniere du Congo, I was amazed at the large number of the stones that were found in perfect or near-perfect crystal forms. This was true both of the 'jewel' categories as well as of the 'off-color' stones; of the large as well as of the small sizes.

Since the off-color stones were sold for industrial purposes and the price at that time was ridiculously low, I suggested to the company that these fine crystals might bring a better price if sold to mineral collectors. I offered, along with my regular work, to sort out the more perfect crystals, to classify them according to their crystal forms and modifications and to package them separately. I also offered to 'contact' firms and individuals likely to be interested in the matter. The company thanked me for the suggestion but replied that their methods of marketing did not make the idea feasible. I was more or less familiar with those methods and felt sure my plan could be carried out with little or no derangement of their routine. However, the idea was never carried out.

It would have broken a collector's heart to see some of the beautiful crystals that were destroyed. I remember, particularly, a very fine octahedron of about 57 carats—big as a small walnut—which was jet black and with angles and faces almost perfectly smooth and unbroken. It was worth at that time, as industrial material, about \$5 per carat. Of course, \$285 is a lot of money for

one crystal, or is it? If so, let us consider the small sizes—say, crystals of about 3 to 5 carats—in octahedrons (the most common form in the Kasai), pentagonal dodecahedrons, triakis dodecahedrons, cubes, twinned cubes, octahedrons modified by cubes and vice versa, and other forms too numerous to mention, and take your pick! In smaller sizes, we got these crystals every day; the larger perfect crystals were less common but by no means rare.

Peculiarly, certain mines seemed to produce certain forms to a large degree, some forms were never seen from others. One mine gave most of the pentagonal dodecahedrons and nearly every stone of any size from this mine was of that form. Practically all of the cubes, certainly the larger ones, came from two mines close together. Incidentally, in the Kasai region I never saw a 'jewel' quality cube, although further east in the Lubilash region and south in Angola this form was found in this quality. Octahedrons were found at all mines and a high percentage of them were quite perfect even down to the 1 millimeter size. Most of the high-grade stones were from this form, less often from broken pieces of what had been larger stones.

How many crystals do I have in my collection? Not a single one! This was due to a ruling of the company that no employe could own an uncut diamond. Thus any uncut stone ever found in his possession was *prima facie* evidence that it was stolen.

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## COLLECTORS' TALES

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### SYNCHRONICAL

By WALTER S. AMOS

This may have been a preview of what might take place when the world comes to an end. We were privileged to see and were "scared" by the following true experience while returning from a prospecting trip in the high Alleghenies of West Virginia.

Leaving the scene of the prospecting activities at the foot of the North Mountain, we took off for home, driving a model T roadster, and when we were about to "top" the mountain, great, black clouds, thunder and lightning, fierce winds of hurricane velocity which seemed to have risen from the Mephistonian depths, bore down upon us. A great cloud and astronomical numbers of insects passed over us. Wild life, denizens of the forest, birds of the air, and beasts of the fields rushed by in a mad search for haven in the haunts of the woods and rocks—the beast to his lair, and bird to his nest. Lightning struck trees near us; thunder was deafening, and darkness was over the face of the earth, and the deluge came like unto that which is recorded in Holy Writ. We confess that we were "scar't" and afraid to stop the car lest the ignition system expire in a watery grave; so we kept traveling prayerfully, straight into this awful cataclysm. Approaching a narrow defile in the road we had a quarter mile view "dead" ahead, and at that synchronized instant a burst of sunshine stabbed through a rift in the clouds, revealing two "its" or persons dressed in long, white robes, bare-headed, bare-footed, and with long, yellow hair and beards, carrying shepherd's crooks and ram-horn trumpets, plodding along in the mud and rain. They seemed absolutely oblivious of anything going on around or about them. Just as we came abreast of them they blew their trumpets, made the sign of the cross with their shepherd's crooks, and with a piercing "holier than thou"

look they stood aside to let us pass. So we just kept going along, afraid to look to the right or left, before or "above", and then, just as suddenly as the storm approached, peace and lulled quiet prevailed in a fearful and awe-inspiring revelation, and there, standing by the side of this remote mountain road, were two nuns dressed in their long, black robes and white, ecclesiastical collars and head coverings, with their arms reverently crossed over their bosoms and praying with rosaries. Now, gentle reader, we don't know what you would think at a time like this, but we thought that we had been weighed in the balance and found wanting, and had been left out of the "taking" and the "Resurrection" of the Just.

The first mountain dwelling we came near was, from all appearances, forsaken; not even a hound left with his mournful notes to announce the approach of strangers. We were in "dead" earnest by this time in our search for some evidence of life left on earth, either of man or beast, and just then, at the turn of the road, there was a deserted gasoline filling station. We stopped, and with fervent hope "honked" the horn in summons, nervously praying to see or hear a voice or some indication that another being might be present to share the world with us. After several uneasy blasts of our horn which sounded like a din in our ears, someone answered, not from the filling station, but from the depths of the woods on the opposite side of the road, with a woe-begone, intolerant inquiry: "What on *earth* do *you* want?"

In a still small voice one of us managed to say: "Five gallons of gas and a quart of oil, please, Sir."

"You were acting and looked like you thought the world was coming to an end", said he. We had seen and heard and felt enough for the moment and

neither of us was in any mood to contradict him or make any inquiry about the several things that were in our troubled minds.

It may be my lot, calling or privilege to have experienced a thousand and one "incidents", and this story is one of them. I have tried to fathom them out by the laws of Nature and coincidence. The Scientist sees, hears and enjoys in fear or gladness many things that to others, not gifted, are just a jumble of happenings.

Let us start the explanation of the story just related by using synchronation, time and place, and the fact that we encountered this summer storm head on and traveled through its entirety to the opposite direction, keenly alert to the works of Nature and just happening to experience these several incidents within the course of an hour's time. On our trip through the following week, we inquired of the filling station operator just what he was doing on the other side of the

road when we drove up for gas the week before. He said that he was just looking to see what damage the storm had done to the trees. Upon questioning how it happened that nuns, Holy Sisters, were beside that lonely bit of road after the storm, he replied: "There is a summer home here, deep in the woods, for those of Catholic Faith". Stopping at the mountain home we found that after the storm passed over the occupants had heard a bell ringing, and had left suddenly to see what was wrong at their neighbor's house.

The two itinerant prophets were John Hand and his brother, Joseph Hand, religious fanatics who lived in the mountain and made trips through the adjoining counties, preaching the Gospel like the disciples of Jesus' era. The wild life, startled at the very suddenness of the storm, were trying to gain shelter in a breakneck stampede. The flight of the insects was often seen as they traveled in clouds, so the mountaineers told us.

## Club and Society Notes

### New York Mineralogical Club

*American Museum of Natural History, New York, N. Y., Wednesday, October 20, 1943.*  
The meeting was convened at 8:10 P. M.  
Adjourned: 9:55 p.m. Attendance: 46.

The meeting was called to order by the president who read the names of newly proposed members. He then gave a report of a meeting of the Board of Directors, explaining that its function was to handle routine business matters, so as to leave the club meetings free for lectures and discussion, and urged the club members to feel free to make suggestions concerning club administration.

The president reported that Mr. Gilman S. Stanton had been appointed Club Representative to the New York Academy of Sciences and that the following curators' committee had been appointed:

Mr. E. L. Sampter, Chairman  
Mr. J. C. Boyle  
Mr. J. W. Radu

The president further reported discussion by the board of the appropriate use of the income from the Kunz fund

The meeting was then open for accounts of collecting and exhibition of material by the members.

Mr. Trainer told of some of the more interesting items in a large garnet collection he had bought and presented a number of speci-

mens, other than garnet, to members of the club for their collections.

Mr. Sampter read an account of summer collecting in Maine and Mrs. Marcin reported a find of large siderite crystals at Roxbury, Connecticut. Titanite crystals were reported from Easton, Pennsylvania, by Dr. Hawkins who attended the New Jersey Mineral Club Trip to this locality in August. In a discussion of the serpentine of Staten Island, several of the members said that they had seen gold-bearing specimens from this locality. Mr. Morgan displayed deeply-colored amethysts and hematite-girdled quartz crystals from Paterson and Mr. Marshall and Miss Waite told of good beryl collecting from the pegmatite quarries of New England.

In response to the president's suggestion that accounts of collecting prior to gas-rationing would be welcome, Mr. Grenzig described collecting when excavation for many of the downtown buildings on Manhattan Island was in progress and when mineralogists were welcomed at the Paterson quarries by foreman Moffat.

Greetings from Dr. Pough, who is in South America, were conveyed to members of the club by the president.

The meeting was adjourned at 9:55.

Respectfully submitted,  
Elizabeth Armstrong, Secretary.

## With Our Dealers

Ward's Natural Science Est., Inc., of Rochester, N. Y., are offering an attractive suite of fine minerals from British Columbia. The minerals of this Canadian province are of great interest to collectors because they include many uncommon species. Perhaps in the series offered by Wards are some which your collection could use!

Schortmann's Minerals, of Easthampton, Mass., have a list of 19—all different—minerals and all from England. Have you any native gold or native silver from Cornwall, England? No? Schortmann's stock contains them. Look the ad up!

John A. Grenzig, of Brooklyn, N. Y., announces the purchase of a fine old-time mineral collection and extends an invitation to collectors to call at his store to look the specimens over. If you are interested in purchasing a few old-time specimens, Grenzig has them for sale!

Warner & Grieger, of Pasadena, Calif., will tempt collectors this month with their long list of interesting books on mineralogy, geology, paleontology, prospecting, fluorescence, gems and gem cutting. How many books do you want? Warner & Grieger will take your order. Send it in today!

Chuck Jordan, of Los Angeles, Calif., announces the acquisition of a new stock of minerals—many exceptionally fine specimens obtained through the purchase of the stock of E. P. Matteson, of Phoenix, Ariz. (now of Brea, Calif.). This great firm tripled its large stock in 1943 and is planning to enlarge it still more in 1944.

West Coast Mineral Co., of La Habra, Calif., have some attractive specials for the New Year which are of special interest to cutters. Are you a cutter?

E. P. Matteson, formerly of Phoenix, Ariz., but now residing in Brea, Calif., has gone out of the mineral business having sold the remainder of his fine stock to Chuck Jordan, of Los Angeles, Calif.

Wilfred C. Eyles, of Bayfield, Colo. (formerly of Hayward, Calif.) is a pioneer diamond saw manufacturer. The foremost cutters in every state of the union, and many of the largest firms doing war work, are using his diamond saws. You may not be one of the foremost cutters but — you should have a good saw. The Eyles saw is a good saw. Order one today!

## Bibliographical Notes

*Bulletin du Service des Mines*: No. 4—134 pp., 16 figs., 1 large geological map (in color). 1939.

No. 5—207 pp., 21 figs., 21 pls., 2 large geological maps (in color). 1941.

These two very interesting geological bulletins (printed in French) and issued, apparently, in 1939 and 1941, reached the Editorial offices of *ROCKS AND MINERALS*, during November, 1943. Of course the war is to blame for the lateness of their arrival. The occurrences of bauxite, chrome, copper, diamonds, gold, graphite, iron, manganese, phosphates, titanites, zircons, and other minerals occurring in French West Africa are described.

Issued by the Gouvernement General de L'Afrique Occidentale Francaise, Dakar, French West Africa.

*National Speleological Society Bulletin*: No. 5, Oct. 1943, 64 pp., 7 illus.

Three very fine articles are the main features in this interesting bulletin (the official journal of a society devoted to caves and cave exploring). These articles are: "Caves in World History (with a partial index to all the known caves of the world and also a cave bibliography), by Robert Morgan; "The Gem of Caves," by Dale White; and "Cave Fauna," by J. A. Fowler.

Issued by the National Speleological Society, 510 Star Bldg., Washington, D. C. Price \$1.00 per copy.

*Kitchigama Lake Area*: By W. W. Longley. 34 pp., 2 figs., 7 pls., 1 geological map (in color). 1943.

*Flavrian Lake Area*: By W. G. Robinson. 21 pp., 1 geological map (in color)). 1943.

These geological reports have been issued by the Bureau of Mines, Quebec, Que., Canada.

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